studio

SETUP GUIDE

YOURS IS HERE

studio

SETUP GUIDE

Regulatory model: P06F series

Regulatory type: P06F001

Notes, Cautions, and Warnings

NOTE: A NOTE indicates important information that helps you make better use of your computer.

CAUTION: A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

WARNING: A WARNING indicates a potential for property damage, personal injury, or death.

Information in this document is subject to change without notice.

March 2010 P/N C1RXR Rev. A00

Contents

Setting Up Your Studio Laptop

This section provides information about setting up your Dell™ Studio™ laptop.

Before Setting Up Your Computer

When positioning your computer, ensure that you allow easy access to a power source, adequate ventilation, and a level surface to place your computer.

Restricting airflow around your Studio laptop may cause it to overheat. To prevent overheating ensure that you leave at least 10.2 cm (4 inches) at the back of the computer and a minimum of 5.1 cm (2 inches) on all other sides. You should never place your computer in an enclosed space, such as a cabinet or drawer when it is powered on.

WARNING: Do not block, push objects into, or allow dust to accumulate in the air vents. Do not place your Dell computer in a low-airflow environment, such as a closed briefcase, or on fabric surfaces, such as carpets or rugs, while it is powered on. Restricting the airflow can damage the computer, deteriorate the computer performance, or cause a fire. The computer turns on the fan when the computer gets hot. Fan noise is normal and does not indicate a problem with the fan or the computer.

CAUTION: Placing or stacking heavy or sharp objects on the computer may result in permanent damage to the computer.

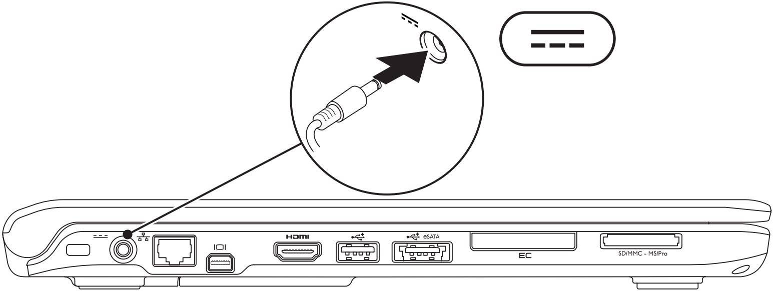
Connect the AC Adapter

Connect the AC adapter to the computer and then plug it into a wall outlet or surge protector.

WARNING: The AC adapter works with electrical outlets worldwide. However, power connectors and power strips vary among countries. Using an incompatible cable or improperly connecting the cable to a power strip or electrical outlet may cause fire or permanent damage to your computer.

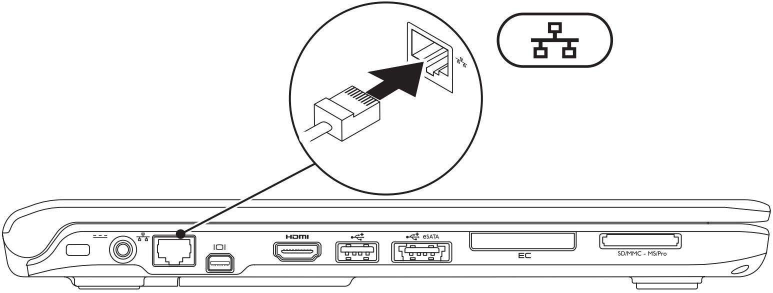
NOTE: Connect the power cable to the adapter firmly and ensure that the light on the adapter is on when you turn on power.

NOTE: Use only Dell AC adapter family PA-3E or PA-12 with your computer.

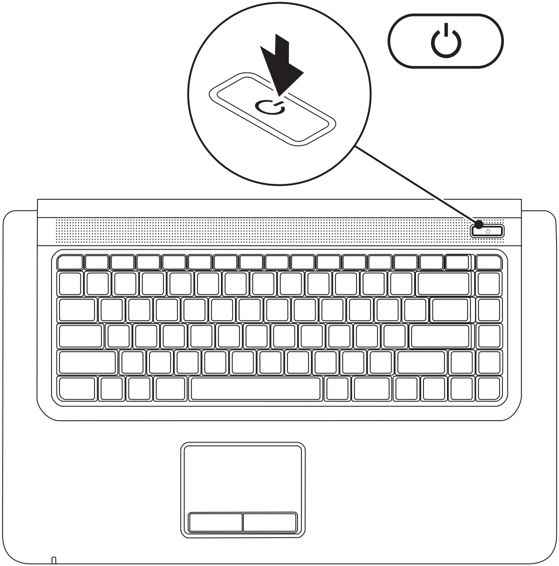


Connect the Network Cable (Optional)

To use a wired network connection, connect the network cable.



Press the Power Button



Set Up Microsoft Windows

Your Dell computer is preconfigured with the Microsoft® Windows® operating system. To set up Windows for the first time, follow the instructions on the screen. These steps are mandatory and may take some time to complete. The Windows setup screens will take you through several procedures including accepting license agreements, setting preferences, and setting up an Internet connection.

CAUTION: Do not interrupt the operating system's setup process. Doing so may render your computer unusable and you will need to reinstall the operating system.

NOTE: For optimal performance of your computer, it is recommended that you download and install the latest BIOS and drivers for your computer available at **support.dell.com**.

NOTE: For more information on the operating system and features, see **support.dell.com/MyNewDell.**

Create System Recovery Media (Recommended)

NOTE: It is recommended that you create a system recovery media as soon as you set up Microsoft Windows.

The system recovery media can be used to restore your computer to the operating state it was in when you purchased the computer, while preserving data files (without the need of the *Operating System* disc). You can use the system recovery media if changes to the hardware, software, drivers, or other system settings have left the computer in an undesirable operating state.

You will require the following to create the system recovery media:

- Dell DataSafe Local Backup
- USB key with a minimum capacity of 8 GB or DVD-R/DVD+R/Blu-ray Disc™

NOTE: Dell DataSafe Local Backup does not support rewritable discs.

To create a system recovery media:

1. Ensure that the AC adapter is connected (see “Connect the AC Adapter” on page 6).
2. Insert the disc or USB key in the computer.
3. Click **Start** → **Programs**→ **Dell DataSafe Local Backup**.
4. Click **Create Recovery Media**.
5. Follow the instructions on the screen.

NOTE: For information on using the system recovery media, see “System Recovery Media” on page 62.

Install the SIM Card (Optional)

NOTE: Installing a SIM card is not required if you are using an EVDO card to access the Internet.

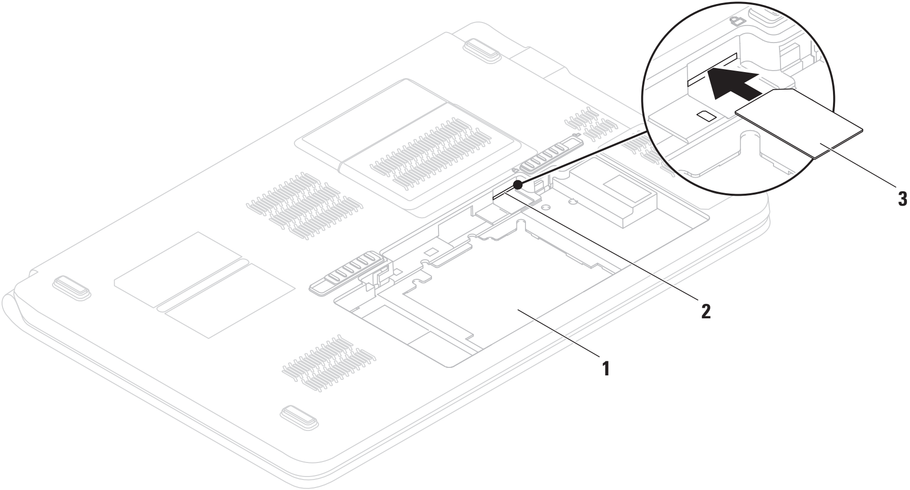
Installing a Subscriber Identity Module (SIM) card allows you to browse the Internet, check e-mail, and connect to a Virtual Private Network. To access these features, you must be within the network of your cellular service provider.

To install the SIM card:

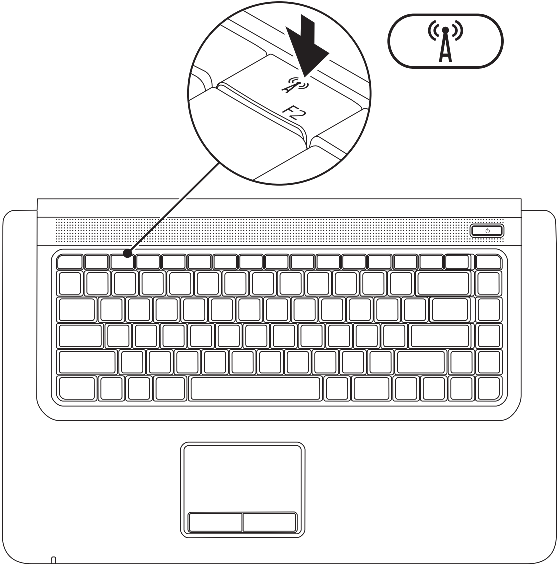
1. Turn off your computer.
2. Remove the battery (see "Removing and Replacing the Battery" on page 38).
3. In the battery bay, slide the SIM card into the SIM card slot.
4. Replace the battery (see "Removing and Replacing the Battery" on page 38).
5. Turn on your computer.

To remove the SIM card, press and eject the SIM card.

1	battery bay
2	SIM card slot
3	SIM card



Enable or Disable Wireless (Optional)

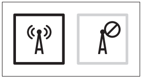


To enable wireless:

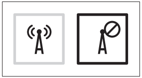
1. Ensure that your computer is turned on.
2. Press the wireless key on the keyboard.

   A confirmation of your selection appears on the screen.

   Wireless enabled



   Wireless disabled



To disable wireless:

Press the wireless key on the keyboard again to turn off all radios.

NOTE: The wireless key allows you to quickly turn off all wireless radios (Wi-Fi and Bluetooth®) on your computer, such as when you are asked to disable all wireless radios on an airplane flight.

Set Up Wireless Display (Optional)

NOTE: For more information about wireless display, see the wireless display adapter *Quick Start Guide*.

Wireless display can only be set up on computers with:

WLAN card	Intel® Centrino™ 6200 or Intel Centrino Ultimate-N 6300
Processor	Intel® Core™ i3 and i5
Video controller	Intel® HD Graphics or ATI Mobility Radeon HD 5470
Operating system	Windows 7 Home Premium, Professional, or Ultimate

To set up wireless display on your computer:

1. Ensure that your computer is turned on.
2. Ensure that wireless is enabled (see “Enable or Disable Wireless” on page 14).
3. Connect the wireless display adapter to the TV.
4. Ensure that Switchable Graphics is set to **Power-Saving GPU** (see “Switchable Graphics” on page 36).
5. Turn on the TV.
6. Select the appropriate video source for your TV, such as HDMI1, HDMI2, or S-Video.

7. Press the wireless display <F6> key on the keyboard.
   The **Intel® Wireless Display** window appears.
8. Select **Scan for available displays**.
9. Select your wireless display adapter from the **Detected wireless displays** list.
10. Enter the security code that appears on your TV.

To enable wireless display:

1. Press the wireless display <F6> key on the keyboard.
   The **Intel® Wireless Display** window appears.
2. Select **Connect to Existing Adapter**.

NOTE: For information on wireless display problems, see “Wireless Display Problems” on page 45.

Connect to the Internet (Optional)

To connect to the Internet, you need an external modem or network connection and an Internet Service Provider (ISP).

If an external USB modem or WLAN adapter is not a part of your original order, you can purchase one at **www.dell.com**.

Setting Up a Wired Connection

- If you are using a DSL or cable/satellite modem connection, contact your ISP or cellular telephone service for setup instructions.
- If you are using a dial-up connection, connect the telephone line to the optional external USB modem and to the telephone wall connector before you set up your Internet connection.

To complete setting up your wired Internet connection, follow the instructions in "Setting Up Your Internet Connection" on page 19.

Setting Up a Wireless Connection

NOTE: To set up your wireless router, see the documentation that shipped with your router.

Before you can use your wireless Internet connection, you need to connect to your wireless router.

To set up your connection to a wireless router:

1. Ensure that wireless is enabled on your computer (see "Enable or Disable Wireless" on page 14).
2. Save and close any open files, and exit any open programs.
3. Click **Start** → **Control Panel.**
4. In the search box, type `network` and then click **Network and Sharing Center**→ **Connect to a network**.
5. Follow the instructions on the screen to complete the setup.

Setting Up Your Internet Connection

ISPs and ISP offerings vary by country. Contact your ISP for offerings available in your country.

If you cannot connect to the Internet but have successfully connected in the past, the ISP might have a service outage. Contact your ISP to check the service status, or try connecting again later.

Have your ISP information ready. If you do not have an ISP, the **Connect to the Internet** wizard can help you get one.

To set up your Internet connection:

1. Save and close any open files, and exit any open programs.
2. Click **Start** → **Control Panel.**
3. In the search box, type `network`, and then click **Network and Sharing Center**→ **Set up a new connection or network**→ **Connect to the Internet**.

   The **Connect to the Internet** window appears.

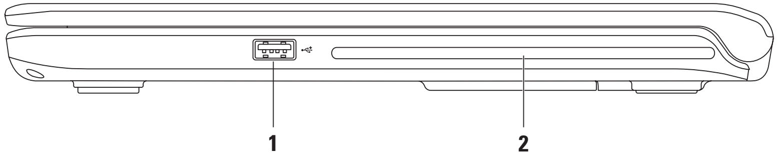
NOTE: If you do not know which type of connection to select, click **Help me choose** or contact your ISP.

4. Follow the instructions on the screen and use the setup information provided by your ISP to complete the setup.

Using Your Studio Laptop

This section provides information about the features available on your Studio laptop.

Right View Features

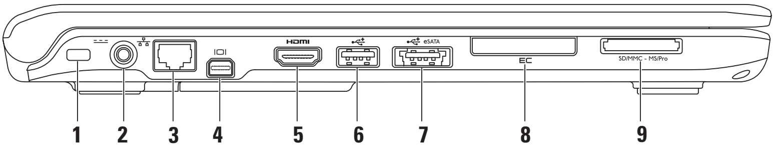


1 **USB 2.0 connector** — Connects to USB devices, such as a mouse, keyboard, printer, external drive, or MP3 player.

2 **Optical drive** — Plays or records CDs and DVDs. Ensure that the side with print or writing is facing upward when inserting discs.

CAUTION: This drive supports nonstandard-sized and -shaped discs; however, degradation in drive performance may be experienced, and in extreme cases, the drive may be damaged.

Left View Features



1	**Security cable slot** — Attaches a commercially available security cable to the computer. **NOTE:** Before you buy a security cable, ensure that it fits into the security cable slot on your computer.
2	**AC adapter connector** — Connects to the AC adapter to power the computer and charge the battery.
3	**Network connector** — Connects your computer to a network or a broadband device.
4	**Mini DisplayPort connector** — Digital interface standard connector that supports external DisplayPort monitors and projectors.
5	**HDMI connector** — Connects to a TV for both 5.1 audio and video signals. **NOTE:** When used with a monitor, only the video signal is read.
6	**USB 2.0 connector** — Connects to USB devices, such as a mouse, keyboard, printer, external drive, or MP3 player.

7 **eSATA/USB combo connector with USB PowerShare** — Connects to eSATA compatible storage devices (such as external hard drives or optical drives) or USB devices (such as a mouse, keyboard, printer, external drive, or MP3 player). The USB PowerShare feature allows you to charge USB devices when the computer is powered on/off or in sleep state.

NOTE: Certain USB devices may not charge when the computer is powered off or in sleep state. In such cases, turn on the computer to charge the device.

NOTE: If you turn off your computer while charging a USB device, the device will stop charging. To continue charging, disconnect the USB device and connect it again.

NOTE: The USB PowerShare automatically shuts off when only 10% of the total battery life remains.

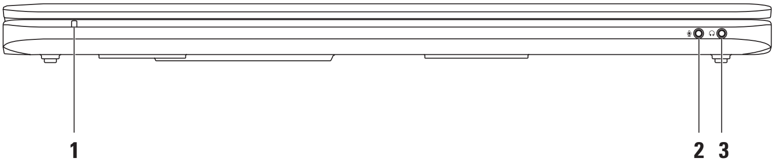
8 **ExpressCard slot** — Supports one 34 mm ExpressCard.

NOTE: Your computer ships with a plastic blank installed in the ExpressCard slot. Blanks protect unused slots from dust and other particles. Save the blank for use when no ExpressCard is installed in the slot; blanks from other computers may not fit your computer.

9 SD/MMC - MS/Pro **7-in-1 Media card reader** — Provides a fast and convenient way to view and share digital photos, music, videos, and documents stored on the memory cards (see the *Comprehensive Specifications* at **support.dell.com/manuals** for supported memory cards).

NOTE: Your computer ships with a plastic blank installed in the memory card slot. Blanks protect unused slots from dust and other particles. Save the blank for use when no memory card is installed in the slot; blanks from other computers may not fit your computer.

Front View Features



1 **AC adapter/battery indicator light** — Indicates the AC adapter or battery states when the computer is closed or the battery power is low.

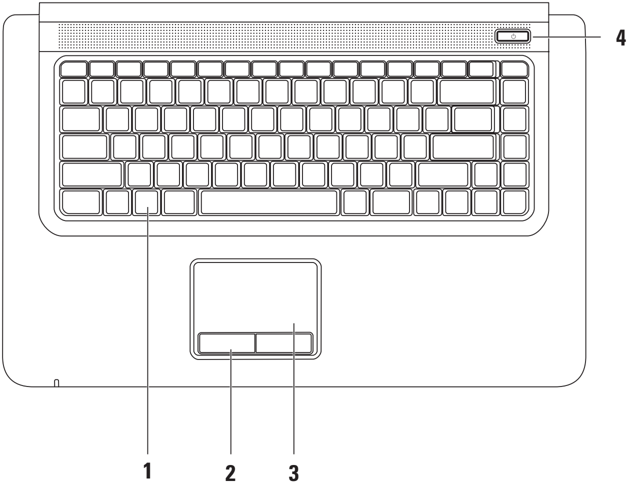
	Indicator light status	Computer state(s)	Battery charge level
AC adapter	solid white	on/off/hibernate	<98%
	breathing white	standby	n/a
	off	on/off/hibernate	>98%
Battery	solid amber	on	<=10%
	breathing white	standby	n/a
	off	on/off/standby/hibernate	>10%

NOTE: The battery is charging when the computer is powered using the AC adapter.

2 **Audio in/microphone connector** — Connects to a microphone or inputs signal for use with audio programs.

3 **Audio out/headphone connector** — Connects to headphones or to a powered speaker or sound system.

Computer Base Features



1 **Keyboard/multimedia control keys/backlit keyboard (optional)** — For more information about the keyboard, see the *Dell Technology Guide*. For more information about the multimedia control keys, see “Multimedia Control Keys” on page 32.

If you purchased the optional backlit keyboard, the F6 key has a backlit keyboard icon on it. The optional backlit keyboard provides visibility in dark environments by illuminating all the symbols on the keys.

Backlit keyboard brightness settings — Press the <F6> key to toggle the three lighting states in this order: 1) half keyboard brightness, 2) full keyboard brightness, 3) no lighting.

> **NOTE:** While using the Wireless display keyboard, the F6 key enables or disables the wireless display function and does not support the backlit keyboard function.

2 **Touch pad buttons (2)** — Provide left-click and right-click functions like those on a mouse.

3 **Touch pad** — Provides the functionality of a mouse to move the cursor, drag or move selected items, or left-click by tapping the surface.

The touch pad supports the **Zoom** feature. To change the touch pad settings, double-click the **Dell Touch pad** icon in the notification area of the desktop.

4 ⏻ **Power button and light** — Turns the computer on or off when pressed. The light in the button indicates the following power states:

- Solid white — The computer is on.
- Breathing white — The computer is in standby mode.
- Off — The computer is off or in hibernate state.

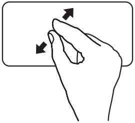
Touch Pad Gestures

Zoom

Allows you to increase or decrease the magnification of the screen content. The zoom feature includes:

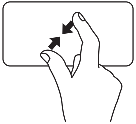
Pinch — Allows you to zoom in or zoom out by moving two fingers apart or bringing them closer together on the touch pad.

To zoom in:



Move two fingers apart to zoom in on the active window.

To zoom out:



Move two fingers close together to zoom out on the active window.

Multimedia Control Keys

The multimedia control keys are located on the keyboard. To use the multimedia controls, press the required key. You can configure the multimedia control keys on the keyboard using the **Function Key Behavior** in the **System Setup** (BIOS) utility.

To access the **Function Key Behavior**:

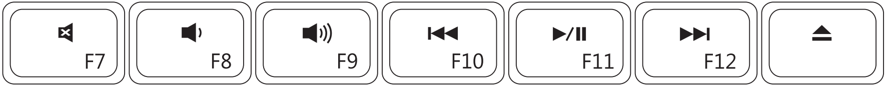
1. Press <F2> during POST (Power On Self Test) to enter the **System Setup** (BIOS) utility.
2. In the **Function Key Behavior**, select **Multimedia Key First** or **Function Key First**.

The options in the **Function Key Behavior** setting are:

Multimedia Key First — This is the default setting. Pressing any multimedia control key performs the associated multimedia action. For function key, press <Fn> + the required function key.

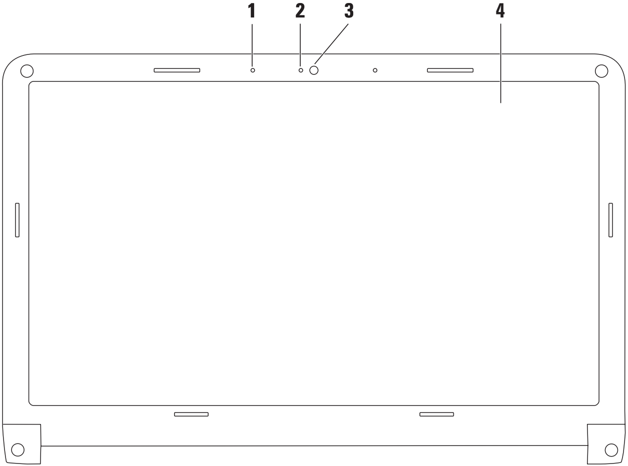
Function Key First — Pressing any function key performs the associated function. For multimedia action, press <Fn> + the required multimedia control key.

NOTE: The **Multimedia Key First** option is active only in the operating system.



- Mute the sound
- Decrease the volume level
- Increase the volume level
- Play the previous track or chapter
- Play or pause
- Play the next track or chapter
- Eject the disc

Display Features



1 **Digital array microphone** — Provides high quality sound for video chatting and voice recording.

2 **Camera activity indicator** — Indicates if the camera is on or off.

3 **Camera** — Built-in camera for video capture, conferencing, and chat.

4 **Display** — Your display can vary based on selections you made when purchasing your computer. For more information about displays, see the *Dell Technology Guide.*

Switchable Graphics

The switchable graphics feature allows you to switch to either the High-performance or Power-saving Graphic Processing Unit (GPU) available on your computer.

Using the Power-saving GPU ensures lesser power consumption and extends the battery life. You can switch to the High-performance GPU when running graphic-intensive applications that require more power, such as 3D games.

To switch between High-performance GPU and Power-saving GPU:

1. Right-click the desktop.
2. Click **Configure Switchable Graphics**.

   The **Switchable Graphics** window appears.
3. In the **Choose a Graphic Processing Unit:** section, click either **High-Performance GPU** or **Power-Saving GPU** based on your preference.
4. Click **Change** to confirm.
5. Click **OK** to close the **Switchable Graphics** window.

Dell Extended Battery Life

The Dell Extended Battery Life feature increases the duration your computer operates on battery power. This feature is disabled by default.

To enable or disable Dell Extended Battery Life:

1. Press <F3>.

   The **Battery Meter** window appears.

2. On the **Battery Status** tab, click **Disable** or **Enable** depending on your preference.

To learn more about the customization options for Dell Extended Battery Life:

1. Press <F3>.

   The **Battery Meter** window appears.

2. On the **Battery Status** tab, click **What is Dell Extended Battery Life?**.

Removing and Replacing the Battery

⚠ **WARNING: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.**

⚠ **WARNING: Using an incompatible battery may increase the risk of fire or explosion. This computer should only use a battery purchased from Dell. Do not use batteries from other computers.**

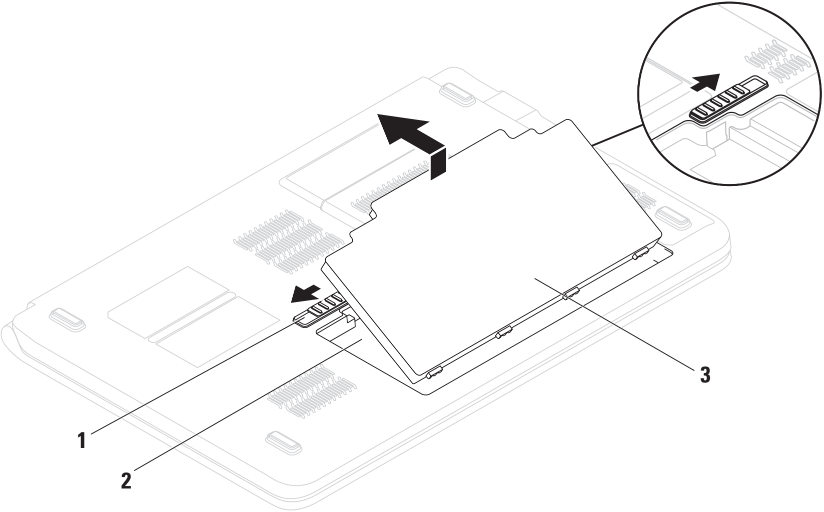
⚠ **WARNING: Before removing the battery, shut down the computer, and remove external cables (including the AC adapter).**

To remove the battery:

1. Shut down the computer and turn it over.
2. Slide the battery release latches to release the battery.
3. Lift the battery up at an angle and remove it from the battery bay.

To replace the battery:

1. Place the battery into the battery bay.
2. Press down to secure the battery in place.



1	battery release latches (2)
2	battery bay
3	battery

Software Features

NOTE: For more information about the features described in this section, see the *Dell Technology Guide* available on your hard drive or at **support.dell.com**.

Productivity and Communication

You can use your computer to create presentations, brochures, greeting cards, fliers, and spreadsheets. You can also edit and view digital photographs and images. Check your purchase order for software installed on your computer.

After connecting to the Internet, you can access websites, setup an e-mail account, and upload or download files.

Entertainment and Multimedia

You can use your computer to watch videos, play games, create your own CDs/DVDs, listen to music or internet radio stations. Your optical disc drive may support multiple disc media formats including CDs and DVDs.

You can download or copy pictures and video files from portable devices, such as digital cameras and cell phones. Optional software applications enable you to organize and create music and video files that can be recorded to disc, saved on portable products such as MP3 players and handheld entertainment devices, or played and viewed directly on connected TVs, projectors, and home theater equipment.

Dell DataSafe Online Backup

NOTE: Dell DataSafe Online may not be available in all regions.

NOTE: A broadband connection is recommended for fast upload/download speeds.

Dell DataSafe Online is an automated backup and recovery service that helps protect your data and other important files from catastrophic incidents like theft, fire, or natural disasters. You can access the service on your computer using a password-protected account.

For more information, go to **delldatasafe.com.**

To schedule backups:

1. Double-click the Dell DataSafe Online icon on the taskbar.
2. Follow the instructions that appear on the screen.

Free Fall Sensor

Free fall sensor protects your computer hard drive from possible damage, by detecting a free fall state caused by accidental laptop drops. When a free fall state is detected, the hard drive is placed in a safe state to protect against damage to the read/write head and possible data loss. Your hard drive returns to normal operation, when the free fall state is no longer detected.

Dell Dock

The Dell Dock is a group of icons that provides easy access to frequently-used applications, files, and folders. You can personalize the Dock by:

- Adding or removing icons
- Grouping related icons into categories
- Changing the color and location of the Dock
- Changing the behavior of the icons



Add a Category

1. Right-click the Dock, click **Add**→ **Category**. The **Add/Edit Category** window is displayed.
2. Enter a title for the category in the **Title** field.
3. Select an icon for the category from the **Select an image:** box.
4. Click **Save**.

Add an Icon

Drag and drop the icon to the Dock or a category.

Remove a Category or Icon

1. Right-click the category or icon on the Dock and click **Delete shortcut** or **Delete category**.
2. Follow the instructions on the screen.

Personalize the Dock

1. Right-click the Dock and click **Advanced Setting...**.
2. Choose the desired option to personalize the Dock.

Solving Problems

This section provides troubleshooting information for your computer. If you cannot solve your problem using the following guidelines, see "Using Support Tools" on page 50 or "Contacting Dell" on page 72.

Beep Codes

Your computer may emit a series of beeps during start-up if there are errors or problems. This series of beeps, called a beep code, identifies a problem. Write down the beep code and contact Dell (see "Contacting Dell" on page 72).

NOTE: To replace parts, see the *Service Manual* available at **support.dell.com/manuals**.

Beep Code	Possible Problem
One	Possible system board failure — BIOS ROM checksum failure
Two	No RAM detected **NOTE:** If you installed or replaced the memory module, ensure that the memory module is seated properly.
Three	Possible system board failure — Chipset error
Four	RAM read/write failure
Five	Real Time Clock failure
Six	Video card or chip failure
Seven	Processor failure
Eight	Display failure

Network Problems

Wireless Connections

If the wireless network connection is lost —

The wireless router is offline or wireless has been disabled on the computer.

- Ensure that wireless is enabled (see “Enable or Disable Wireless” on page 14).
- Check your wireless router to ensure it is powered on and connected to your data source (cable modem or network hub).
- Re-establish your connection to the wireless router (see “Setting Up a Wireless Connection” on page 18).
- Interference may be blocking or interrupting your wireless connection. Try moving the computer closer to your wireless router.

Wired Connections

If the wired network connection is lost — The cable is loose or damaged.

- Check the cable to ensure it is plugged in and not damaged.
- If the problem persists, contact your network administrator or ISP.

Wireless Display Problems

If you are not able to setup the wireless display — wireless may be disabled on your computer or switchable graphics may be set to High-Performance GPU.

- Ensure that wireless is enabled (see “Enable or Disable Wireless” on page 14.
- Ensure that Switchable Graphics is set to Power-saving GPU (see “Switchable Graphics” on page 36).

If your computer cannot identify or connect to the wireless display adapter — The wireless display adapter may be offline or it may be connected to another device.

- Ensure that your wireless display is turned on and connected to your monitor or TV.
- Disable the wireless display adapter’s connection to other devices, and try connecting from your computer.

Power Problems

If the power light is off — The computer is either turned off, in hibernate state, or not receiving power.

- Press the power button. The computer resumes normal operation if it is off or in hibernate mode.
- Reseat the power cable into the power connector on the computer and the electrical outlet.
- If the computer is plugged into a power strip, ensure that the power strip is plugged into an electrical outlet and that the power strip is turned on. Also bypass power protection devices, power strips, and power extension cables to verify that the computer turns on properly.
- Ensure that the electrical outlet is working by testing it with another device, such as a lamp.

- Check the AC adapter cable connections. If the AC adapter has a light, ensure that the light on the AC adapter is on.

If the power light is solid white and the computer is not responding — The display may not be responding. Press the power button until the computer turns off and then turn it back on.

If the power light is breathing white — The computer is in standby mode. Move the mouse, touch the touch pad, or press the power button to resume normal operation.

If the power light is solid amber — The computer is on and the battery charge is low.

- Connect the AC adapter to charge the battery.
- Move the mouse, touch the touch pad, or press the power button to resume normal operation.

If you encounter interference that hinders reception on your computer — An unwanted signal is creating interference by interrupting or blocking other signals. Some possible causes of interference are:

- Power, keyboard, and mouse extension cables.
- Too many devices connected to a power strip.
- Multiple power strips connected to the same electrical outlet.

Memory Problems

If you receive an insufficient memory message —

- Save and close any open files and exit any open programs you are not using to see if that resolves the problem.
- See the software documentation for minimum memory requirements. If necessary, install additional memory (see the *Service Manual* at **support.dell.com/manuals**).
- Reseat the memory modules (see the *Service Manual* at **support.dell.com/manuals**) to ensure that your computer is successfully communicating with the memory.

If you experience other memory problems —

- Ensure that you are following the memory installation guidelines (see the *Service Manual* at **support.dell.com/manuals**).
- Check if the memory module is compatible with your computer. Your computer supports DDR3 memory. For more information about the type of memory supported by your computer, see "Basic Specifications" on page 76.
- Run the Dell Diagnostics (see "Dell Diagnostics" on page 54).
- Reseat the memory modules (see the *Service Manual* at **support.dell.com/manuals**) to ensure that your computer is successfully communicating with the memory.

Lockups and Software Problems

If the computer does not start up — Ensure that the power cable is firmly connected to the computer and to the electrical outlet.

If a program stops responding —

End the program:

1. Press <Ctrl><Shift><Esc> simultaneously.
2. Click **Applications**.
3. Click the program that is no longer responding
4. Click **End Task**.

If a program crashes repeatedly — Check the software documentation. If necessary, uninstall and then reinstall the program.

NOTE: Software usually includes installation instructions in its documentation or on the CD.

If the computer stops responding or a solid blue screen appears —

CAUTION:You might lose data if you are unable to perform an operating system shutdown.

If you are unable to get a response by pressing a key on your keyboard or moving your mouse, press the power button for at least 8 to 10 seconds until the computer turns off and then retsart your computer.

If a program is designed for an earlier Microsoft® Windows® operating system —

Run the Program Compatibility Wizard. The Program Compatibility Wizard configures a program so that it runs in an environment similar to an earlier version of Microsoft Windows operating system environments.

To run the Program Compatibility Wizard:

1. Click **Start** → **Control Panel**→ **Programs**→ **Run programs made for previous versions of Windows.**
2. In the welcome screen, click Next.
3. Follow the instructions on the screen..

If you have other software problems —

- Back up your files immediately.
- Use a virus-scanning program to check the hard drive or CDs.
- Save and close any open files or programs and shut down your computer through the **Start** menu.
- Check the software documentation or contact the software manufacturer for troubleshooting information:
  - Ensure that the program is compatible with the operating system installed on your computer.
  - Ensure that your computer meets the minimum hardware requirements needed to run the software. See the software documentation for information.
  - Ensure that the program is installed and configured properly.
  - Verify that the device drivers do not conflict with the program.
  - If necessary, uninstall and then reinstall the program.

Using Support Tools

Dell Support Center

The **Dell Support Center** helps you find the service, support, and system-specific information you need.

To launch the application, click the  icon in the taskbar.

The **Dell Support Center** home page displays your computer's model number, service tag, express service code, and service contact information.

The home page also provides links to access:



Self Help (Troubleshooting, Security, System Performance, Network/Internet, Backup/Recovery, and Windows operating system)



Alerts (technical support alerts relevant to your computer)



Assistance from Dell (Technical Support with DellConnect™, Customer Service, Training and Tutorials, How-To Help with Solution Station™, and Online Scan with PC CheckUp)



About Your System (System Documentation, Warranty Information, System Information, Upgrades & Accessories)

For more information about **Dell Support Center** and available support tools, click the **Services** tab at **support.dell.com**.

My Dell Downloads

NOTE: My Dell Downloads may not be available in all regions.

Some of the software pre-installed on your new computer do not include a backup CD or DVD. This software is available at My Dell Downloads. From this website you can download available software for reinstallation or create your own backup media.

To register and use My Dell Downloads:

1. Go to **downloadstore.dell.com/media**.
2. Follow the instructions on the screen to register and download the software.
3. Reinstall or create backup media of the software for future use.

System Messages

If your computer has an issue or error, it may display a system message that will help you identify the cause and action needed to resolve the issue.

NOTE: If the message you received is not listed in the following examples, see the documentation for either the operating system or the program that was running when the message appeared. Alternatively see the *Dell Technology Guide* available on your hard drive or at **support.dell.com/manuals,** or see “Contacting Dell” on page 72.

Alert! Previous attempts at booting this system have failed at checkpoint [nnnn]. For help in resolving this problem, please note this checkpoint and contact Dell Technical Support — The computer failed to complete the boot routine three consecutive times for the same error. Contact Dell (see “Contacting Dell” on page 72).

CMOS checksum error — Possible system board failure or Real Time Clock (RTC) battery low. Replace the coin-cell battery (see the *Service Manual* at **support.dell.com/manuals)** or contact Dell (see "Contacting Dell" on page 72).

CPU fan failure — CPU fan has failed. Replace the CPU fan (see the *Service Manual* at **support.dell.com/manuals)**.

Hard-disk drive failure — Possible hard drive failure during POST. Contact Dell (see "Contacting Dell" on page 72).

Hard-disk drive read failure — Possible hard drive failure during HDD boot test. Contact Dell (see "Contacting Dell" on page 72).

Keyboard failure — Keyboard failure or loose cable.

To replace the keyboard, see the *Service Manual* at **support.dell.com/manuals**.

No boot device available — No bootable partition on hard drive, the hard drive cable is loose, or no bootable device exists.

- If the hard drive is your boot device, ensure that the cables are connected and that the drive is installed properly and partitioned as a boot device.
- Enter system setup and ensure that the boot sequence information is correct (see the *Dell Technology Guide* available on your hard drive or at **support.dell.com/manuals**).

No timer tick interrupt — A chip on the system board might be malfunctioning or system board failure. Contact Dell (see "Contacting Dell" on page 72).

USB over current error — Disconnect the USB device. Your USB device needs more power for it to function properly. Use an external power source to connect the USB device, or if your device has two USB cables, connect both of them.

CAUTION - Hard Drive SELF MONITORING SYSTEM has reported that a parameter has exceeded its normal operating range. It is recommended that you back up your data regularly. A parameter out of range may or may not indicate a potential hard drive problem — S.M.A.R.T error, possible hard drive failure. Contact Dell (see “Contacting Dell” on page 72).

Hardware Troubleshooter

If a device is either not detected during the operating system setup or is detected but incorrectly configured, you can use the **Hardware Troubleshooter** to resolve the incompatibility.

To start the Hardware Troubleshooter:

1. Click **Start** → **Help and Support**.
2. Type `hardware troubleshooter` in the search field and press <Enter> to start the search.
3. In the search results, select the option that best describes the problem and follow the remaining troubleshooting steps.

Dell Diagnostics

If you experience a problem with your computer, perform the checks in “Lockups and Software Problems” on page 48 and run the Dell Diagnostics before you contact Dell for technical assistance.

NOTE: Dell Diagnostics works only on Dell computers.

NOTE: The *Drivers and Utilities* disc may not ship with your computer.

See the *Comprehensive Specifications* at **support.dell.com/manuals** to review your computer’s configuration information, and ensure that the device that you want to test appears in the system setup program and is active.

Start the Dell Diagnostics from your hard drive or from the *Drivers and Utilities* disc.

Starting Dell Diagnostics From Your Hard Drive

The Dell Diagnostics is located on a hidden diagnostic utility partition on your hard drive.

NOTE: If your computer cannot display a screen image, contact Dell (see “Contacting Dell” on page 72).

1. Ensure that the computer is connected to an electrical outlet that is known to be working properly.
2. Turn on (or restart) your computer.
3. When the DELL™ logo appears, press <F12> immediately. Select **Diagnostics** from the boot menu and press <Enter>.
   This may invoke the Pre-Boot System Assessment (PSA) on your computer.

NOTE: If you wait too long and the operating system logo appears, continue to wait until you see the Microsoft® Windows® desktop, then shut down your computer and try again.

NOTE: If you see a message stating that no diagnostics utility partition has been found, run the Dell Diagnostics from the *Drivers and Utilities* disc.

If PSA is invoked:

a. The PSA starts running tests.

b. If the PSA completes successfully, the following message appears: “`No problems have been found with this system so far. Do you want to run the remaining memory tests? This will take about 30 minutes or more. Do you want to continue? (Recommended).`”

c. If you are experiencing memory issues, press <y>, otherwise press <n>. The following message appears: “`Booting Dell Diagnostic Utility Partition. Press any key to continue.`”

d. Press any key to go to the **Choose An Option** window.

If PSA is not invoked:

Press any key to start the Dell Diagnostics from the diagnostics utility partition on your hard drive.

4. Select the test you want to run.

5. If a problem is encountered during a test, a message appears with an error code and a description of the problem. Write down the error code and problem description and contact Dell (see “Contacting Dell” on page 72).

NOTE: The Service Tag for your computer is displayed at the top of each test screen. The Service Tag helps you identify your computer when you contact Dell.

6. When the tests are complete, close the test screen to return to the **Choose An Option** window.

7. To exit the Dell Diagnostics and to restart the computer, click **Exit**.

Starting Dell Diagnostics From the Drivers and Utilities Disc

NOTE: The *Drivers and Utilities* disc may not ship with your computer.

1. Insert the *Drivers and Utilities* disc.

2. Shut down and restart the computer. When the DELL logo appears, press <F12> immediately.

NOTE: If you wait too long and the operating system logo appears, continue to wait until you see the Microsoft Windows desktop, then shut down your computer and try again.

NOTE: The next steps change the boot sequence for one time only. On the next start-up, the computer boots according to the devices specified in the system setup program.

3. When the boot device list appears, highlight **CD/DVD/CD-RW** and press <Enter>.
4. Select the **Boot from CD-ROM** option from the menu that appears and press <Enter>.
5. Type `1` to start the CD menu and press <Enter> to proceed.
6. Select **Run the 32 Bit Dell Diagnostics** from the numbered list. If multiple versions are listed, select the version appropriate for your computer.
7. Select the test you want to run.
8. If a problem is encountered during a test, a message appears with an error code and a description of the problem. Write down the error code and problem description and contact Dell (see “Contacting Dell” on page 72).

NOTE: The Service Tag for your computer is displayed at the top of each test screen. The Service Tag helps you identify your computer when you contact Dell.

9. When the tests are complete, close the test screen to return to the **Choose An Option** window.
10. To exit the Dell Diagnostics and restart the computer, click **Exit**.
11. Remove the *Drivers and Utilities* disc.

Restoring Your Operating System

You can restore the operating system on your computer using any of the following options:

CAUTION: Using Dell Factory Image Restore or the *Operating System* disc permanently deletes all data files on your computer. If possible, backup your data files before using these options.

Option	Use
System Restore	as the first solution
Dell DataSafe Local Backup	when System Restore does not resolve your problem
System recovery media	when operating system failure prevents the use of System Restore and DataSafe Local Backup when installing the factory image on a newly installed hard drive
Dell Factory Image Restore	to restore your computer to the operating state it was in when you received your computer
Operating System disc	to reinstall only the operating system on your computer

NOTE: The *Operating System* disc may not ship with your computer.

System Restore

The Microsoft® Windows® operating systems provide a System Restore option which allows you to return your computer to an earlier operating state (without affecting data files) if changes to the hardware, software, or other system settings have left the computer in an undesirable operating state. Any changes that System Restore makes to your computer are completely reversible.

To run System Restore:

1. Click **Start** .
2. In the search box, type `System Restore` and press <Enter>.

   NOTE: The **User Account Control** window may appear. If you are an administrator on the computer, click **Continue**; otherwise, contact your administrator.

3. Click **Next** and follow the remaining prompts on the screen.

In the event that System Restore did not resolve the issue, you may undo the last system restore.

To undo the last System Restore:

NOTE: Before you undo the last system restore, save and close all open files and exit any open programs. Do not alter, open, or delete any files or programs until the system restoration is complete.

1. Click **Start** .
2. In the search box, type `System Restore` and press <Enter>.

   NOTE: The **User Account Control** window may appear. If you are an administrator on the computer, click **Continue**; otherwise, contact your administrator to continue.

3. Click **Undo System Restore** and click **Next**.
4. Review your choices, and then click **Finish**. Your computer will restart and display a confirmation that the undo process is completed.

Dell DataSafe Local Backup

CAUTION: Using Dell DataSafe Local Backup permanently removes any programs or drivers installed after you received your computer. Prepare backup media of applications you need to install on your computer before using Dell DataSafe Local Backup. Use Dell DataSafe Local Backup only if System Restore did not resolve your operating system problem.

CAUTION: Although Dell Datasafe Local Backup is designed to preserve the data files on your computer, it is recommended that you backup your data files before using the Dell DataSafe Local Backup.

NOTE: Dell DataSafe Local Backup may not be available in all regions.

NOTE: If Dell DataSafe Local Backup is not available on your computer, use Dell Factory Image Restore (see "Dell Factory Image Restore" on page 63) to restore your operating system.

You can use Dell DataSafe Local Backup to restore your hard drive to the operating state it was in when you purchased your computer, while preserving the data files.

Dell DataSafe Local Backup allows you to:

- Backup and restore your computer to an earlier operating state
- Create system recovery media

Dell DataSafe Local Backup Basic

To restore the factory image while preserving the data files:

1. Turn off your computer.
2. Disconnect all the devices (USB drive, printer, etc.) connected to the computer and remove any newly added internal hardware.

   NOTE: Do not disconnect the AC adapter.

3. Turn on your computer.
4. When the DELL logo appears, press <F8> several times to access the **Advanced Boot Options** window.

NOTE: If you wait too long and the operating system logo appears, continue to wait until you see the Microsoft Windows desktop; then, shut down your computer and try again.

5. Select **Repair Your Computer**.
6. Select **Dell Factory Image Recovery and DataSafe Options** and follow the instructions on the screen.

NOTE: The duration of the restoration process depends on the amount of data to be restored.

NOTE: For more information, see the knowledge base article 353560 at **support.dell.com**.

Upgrading to Dell DataSafe Local Backup Professional

NOTE: Dell DataSafe Local Backup Professional may be installed on your computer, if you ordered it at the time of purchase.

Dell DataSafe Local Backup Professional provides additional features that allow you to:

- Backup and restore your computer based on file types
- Backup files to a local storage device
- Schedule automated backups

To upgrade to Dell DataSafe Local Backup Professional:

1. Double-click the Dell DataSafe Local Backup icon on the taskbar.
2. Click **UPGRADE NOW!**
3. Follow the instructions on the screen to complete the upgrade.

System Recovery Media

CAUTION: Although the system recovery media is designed to preserve the data files on your computer, it is recommended that you backup your data files before using the system recovery media.

You can use the system recovery media, created using Dell DataSafe Local Backup, to return your hard drive to the operating state it was in when you purchased the computer while persevering the data files on your computer.

Use the system recovery media in case of:

- Operating system failure that prevents the use of recovery options that are installed on your computer.
- Hard drive failure that prevents data from being recovered.

To restore the factory image of your computer using the system recovery media:

1. Insert the system recovery disc or USB key and restart the computer.
2. When the DELL™ logo appears, press <F12> immediately.

NOTE: If you wait too long and the operating system logo appears, continue to wait until you see the Microsoft® Windows® desktop; then, shut down your computer and try again.

3. Select the appropriate boot device from the list and press <Enter>.
4. Follow the instructions on the screen to complete the recovery process.

Dell Factory Image Restore

⚠ **WARNING: Using Dell Factory Image Restore permanently deletes all data on the hard drive and removes any programs or drivers installed after you received your computer. If possible, back up the data before using this option. Use Dell Factory Image Restore only if System Restore did not resolve your operating system problem.**

NOTE: Dell Factory Image Restore may not be available in certain countries or on certain computers.

NOTE: If Dell Factory Image Restore is not available on your computer, use Dell DataSafe Local Backup (see “Dell DataSafe Local Backup” on page 60) to restore your operating system.

Use Dell Factory Image Restore only as the last method to restore your operating system. This option restores your hard drive to the operating state it was in when you purchased the computer. Any programs or files added since you received your computer—including data files—are permanently deleted from the hard drive. Data files include documents, spreadsheets, e-mail messages, digital photos, music files, and so on. If possible, back up all data before using Dell Factory Image Restore.

To restore the Dell factory image on your hard drive:

1. Turn on the computer.
2. When the DELL logo appears, press <F8> several times to access the **Advanced Boot Options** window.

NOTE: If you wait too long and the operating system logo appears, continue to wait until you see the Microsoft Windows desktop, then shut down your computer and try again.

3. Select **Repair Your Computer**.
   The **System Recovery Options** window appears.
4. Select a keyboard layout and click **Next**.
5. To access the recovery options, log on as a local user. To access the command prompt, type `administrator` in the **User name** field, then click **OK**.
6. Click **Dell Factory Image Restore**.
   The **Dell Factory Image Restore** welcome screen appears.

NOTE: Depending upon your configuration, you may need to select **Dell Factory Tools**, then **Dell Factory Image Restore**.

7. Click **Next**.
   The **Confirm Data Deletion** screen appears.

NOTE: If you do not want to proceed with Factory Image Restore, click **Cancel**.

8. Select the check box to confirm that you want to continue reformatting the hard drive and restoring the system software to the factory condition, then click **Next**.

   The restore process begins and may take five or more minutes to complete. A message appears when the operating system and factory-installed applications have been restored to factory condition.
9. Click **Finish** to reboot the computer.

Getting Help

If you experience a problem with your computer, you can complete the following steps to diagnose and troubleshoot the problem:

1. See "Solving Problems" on page 43 for information and procedures that pertain to the problem your computer is experiencing.
2. See the *Dell Technology Guide* for more troubleshooting information.
3. See "Dell Diagnostics" on page 54 for procedures on how to run Dell Diagnostics.
4. Fill out the "Diagnostic Checklist" on page 71.
5. Use Dell's extensive suite of online services available at Dell Support (**support.dell.com**) for help with installation and troubleshooting procedures. See "Online Services" on page 67 for a more extensive list of Dell Support online.
6. If the preceding steps have not resolved the problem, see "Before You Call" on page 70.

NOTE: Call Dell Support from a telephone near or at the computer so that the support staff can assist you with any necessary procedures.

NOTE: Dell's Express Service Code system may not be available in all countries.

When prompted by Dell's automated telephone system, enter your Express Service Code to route the call directly to the proper support personnel. If you do not have an Express Service Code, open the **Dell Accessories** folder, double-click the **Express Service Code** icon, and follow the directions.

NOTE: Some of the services are not always available in all locations outside the continental U.S. Call your local Dell representative for information on availability.

Technical Support and Customer Service

Dell's support service is available to answer your questions about Dell hardware. Our support staff use computer-based diagnostics to provide fast, accurate answers.

To contact Dell's support service, see "Before You Call" on page 70 and "Contacting Dell" on page 72.

DellConnect

DellConnect™ is a simple online access tool that allows a Dell service and support associate to access your computer through a broadband connection, diagnose your problem and repair it all under your supervision. For more information, go to **www.dell.com/dellconnect**.

Online Services

You can learn about Dell products and services on the following websites:

- **www.dell.com**
- **www.dell.com/ap** (Asian/Pacific countries only)
- **www.dell.com/jp** (Japan only)
- **www.euro.dell.com** (Europe only)
- **www.dell.com/la** (Latin American and Caribbean countries)
- **www.dell.ca** (Canada only)

You can access Dell Support through the following websites and e-mail addresses:

Dell Support websites

- **support.dell.com**
- **support.jp.dell.com** (Japan only)
- **support.euro.dell.com** (Europe only)
- **supportapj.dell.com** (Asia Pacific only)

Dell Support e-mail addresses

- **mobile_support@us.dell.com**
- **support@us.dell.com**
- **la-techsupport@dell.com** (Latin America and Caribbean countries only)
- **apsupport@dell.com** (Asian/Pacific countries only)

Dell Marketing and Sales e-mail addresses

- **apmarketing@dell.com** (Asian/Pacific countries only)
- **sales_canada@dell.com** (Canada only)

Anonymous file transfer protocol (FTP)

- **ftp.dell.com**

  Log in as user: `anonymous`, and use your e-mail address as your password.

Automated Order-Status Service

To check on the status of any Dell products that you have ordered, you can go to **support.dell.com**, or you can call the automated order-status service. A recording prompts you for the information needed to locate and report on your order. For the telephone number to call your region, see "Contacting Dell" on page 72.

If you have a problem with your order, such as missing parts, wrong parts, or incorrect billing, contact Dell for customer assistance. Have your invoice or packing slip handy when you call. For the telephone number to call for your region, see "Contacting Dell" on page 72.

Product Information

If you need information about additional products available from Dell, or if you would like to place an order, visit the Dell website at **www.dell.com**. For the telephone number to call for your region or to speak to a sales specialist, see "Contacting Dell" on page 72.

Returning Items for Repair Under Warranty or for Credit

Prepare all items being returned, whether for repair or credit, as follows:

NOTE: Before you return the product to Dell, make sure to back up any data on the hard drive and on any other storage device in the product. Remove any and all confidential, proprietary and personal information, as well as removable media, such as CDs and ExpressCards. Dell is not responsible for any of your confidential, proprietary or personal information; lost or corrupted data; or damaged or lost removable media that may be included with your return.

1. Call Dell to obtain a Return Material Authorization Number, and write it clearly and prominently on the outside of the box. For the telephone number to call for your region, see “Contacting Dell” on page 72.
2. Include a copy of the invoice and a letter describing the reason for the return.
3. Include a copy of the Diagnostics Checklist (see “Diagnostic Checklist” on page 71), indicating the tests that you have run and any error messages reported by the Dell Diagnostics (see “Dell Diagnostics” on page 54).
4. Include any accessories that belong with the item(s) being returned (power cables, software, guides, and so on) if the return is for credit.
5. Pack the equipment to be returned in the original (or equivalent) packing materials.

NOTE: You are responsible for paying shipping expenses. You are also responsible for insuring any product returned, and you assume the risk of loss during shipment to Dell. Collect On Delivery (C.O.D.) packages are not accepted.

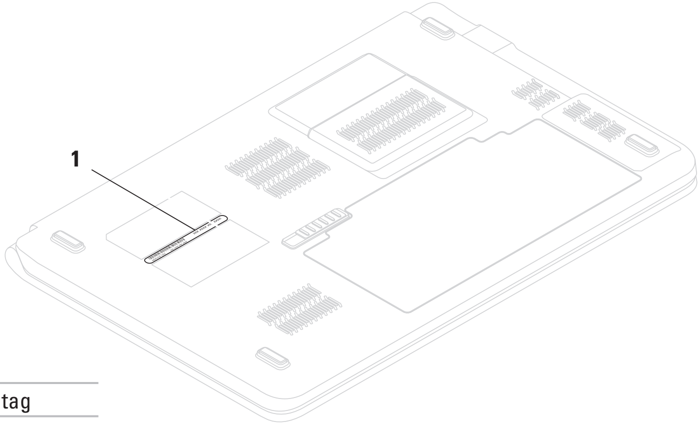
NOTE: Returns that are missing any of the preceding requirements will be refused at Dell’s receiving dock and returned to you.

Before You Call

NOTE: Have your Express Service Code ready when you call. The code helps Dell's automated-support telephone system direct your call more efficiently. You may also be asked for your Service Tag.

Locating Your Service Tag

The Service Tag is located on the bottom of your computer.



1	service tag

Remember to fill out the following Diagnostics Checklist. If possible, turn on your computer before you call Dell for assistance and call from a telephone at or near the computer. You may be asked to type some commands at the keyboard, relay detailed information during operations, or try other troubleshooting steps possible only at the computer itself. Ensure that the computer documentation is available.

Diagnostic Checklist

- Name:
- Date:
- Address:
- Phone number:
- Service Tag (bar code on the back or bottom of the computer):
- Express Service Code:
- Return Material Authorization Number (if provided by Dell support technician):
- Operating system and version:
- Devices:
- Expansion cards:
- Are you connected to a network? Yes/No
- Network, version, and network adapter:
- Programs and versions:

See your operating system documentation to determine the contents of the computer's start-up files. If the computer is connected to a printer, print each file. Otherwise, record the contents of each file before calling Dell.

- Error message, beep code, or diagnostic code:
- Description of problem and troubleshooting procedures you performed:

Contacting Dell

For customers in the United States, call 800-WWW-DELL (800-999-3355).

NOTE: If you do not have an active Internet connection, you can find contact information on your purchase invoice, packing slip, bill, or Dell product catalog.

Dell provides several online and telephone-based support and service options. Availability varies by country and product, and some services may not be available in your area.

To contact Dell for sales, technical support, or customer service issues:

1. Visit **support.dell.com/contactdell**.
2. Select your country or region.
3. Select the appropriate service or support link based on your need.
4. Choose the method of contacting Dell that is convenient for you.

Finding More Information and Resources

If you need to:	See:
reinstall your operating system	"System Recovery Media" on page 62
run a diagnostic program for your computer	"Dell Diagnostics" on page 54
reinstall laptop system software	"My Dell Downloads" on page 51
upgrade your computer with new or additional memory, or a new hard drive reinstall or replace a worn or defective part	the *Service Manual* at **support.dell.com/manuals** **NOTE:** In some countries, opening and replacing parts of your computer may void your warranty. Check your warranty and return policies before working inside your computer.
find safety best practices information for your computer review Warranty information, Terms and Conditions (U.S. only), Safety instructions, Regulatory information, Ergonomics information, and End User License Agreement	the safety and regulatory documents that shipped with your computer and also see the Regulatory Compliance Homepage at **www.dell.com/regulatory_compliance**

If you need to:	See:
find your Service Tag/Express Service Code — You must use the service tag to identify your computer on **support.dell.com** or to contact technical support	the bottom of your computer the Dell Support Center. To launch the Dell Support Center, click the  icon in the taskbar.
find drivers and downloads; readme files access technical support and product help check on your order status for new purchases find solutions and answers to common questions locate information for last-minute updates about technical changes to your computer or advanced technical-reference material for technicians or experienced users	**support.dell.com**

Basic Specifications

This section provides information that you may need when setting up, updating drivers for, and upgrading your computer. For more detailed specifications, see the *Comprehensive Specifications* at **support.dell.com/manuals**.

NOTE: Offerings may vary by region. For more information regarding the configuration of your computer, click **Start** → **Help and Support** and select the option to view information about your computer.

Computer Model

Dell Studio 1569

Computer Information

Processor type	Intel® Core™ i5 Intel Core i3
System chipset	Intel HM57

Memory

Memory module connector	two user-accessible SODIMM connectors
Memory module capacities	2 GB and 4 GB
Memory type	DDR3 1066/1333 MHz

NOTE: For instructions on upgrading memory, see the *Service Manual* at **support.dell.com/manuals**.

Connectors

Audio	one microphone-in connector, one stereo headphone/speaker connector
Mini-Card	one Type IIIA full Mini-Card slot, one half-size Mini-Card slot
HDMI	one 19-pin connector
Network	one RJ45 connector
USB	two 4-pin USB 2.0-compliant connectors
Mini DisplayPort	one 20-pin connector
ExpressCard	one 34 mm slot
Media Card Reader	one 7-in-1 slot

Connectors

eSATA	one seven-pin/four-pin eSATA/USB combo connector

Communications

Modem (optional)	external V.92 56K USB modem
Network adapter	10/100/1000 Ethernet LAN on system board
Wireless	WLAN, WWAN (optional), and Bluetooth® wireless technology

Camera

Resolution	2.0 megapixel
Video resolution	160 x 120 ~1600 x 1200

Display

Type	15.6” HD WLED backlight TrueLife
Height	193.54 mm (7.62 inches)
Width	344.23 mm (13.55 inches)
Diagonal	396.42 mm (15.6 inches)

Battery

9-cell “smart” lithium ion

Height	41.7 mm (1.64 inches)
Width	264.6 mm (10.41 inches)
Depth	53.2 mm (2.09 inches)
Weight	0.52 kg (1.15 lb)
Voltage	11.1 VDC
Charge time (approximate)	4 hours (when the computer is turned off)
Operating time (approximate)	varies depending on operating conditions
Coin-cell battery	CR-2032

AC Adapter

Input voltage	100–240 VAC
Input current	1.5 A
Input frequency	50–60 Hz
Output power	90 W 65 W (Auto-Air adapter)
Rated output current	4.62 A (90 W) 3.34 A (65 W)
Rated output voltage	19.5 VDC
Operating temperature	0° to 35°C (32° to 95°F)
Storage temperature	–40° to 65°C (–40° to 149°F)

Physical

Height	18 mm to 25.3 mm (0.71 inches to 0.99 inches)
Width	382.0 mm (15.04 inches)
Depth	252.0 mm (9.92 inches)
Weight (with optical drive and battery)	2.51 kb (5.52 lb)

Computer Environment

Temperature range	
Operating	0° to 35°C (32° to 95°F)
Storage	–40° to 65°C (–40° to 149°F)
Relative humidity (maximum)	
Operating	10% to 90% (non condensing)
Storage	5% to 95% (non condensing)
Maximum vibration (using a random vibration spectrum that simulates user environment)	
Operating	0.66 GRMS
Non-Operating	1.30 GRMS

Computer Environment

Maximum shock (for operating — measured with Dell Diagnostics running on the hard drive and a 2-ms half-sine pulse; for non-operating — measured with the hard drive in head-parked position and a 2-ms half-sine pulse)	
Operating	110 G
Non-Operating	160 G
Altitude (maximum)	
Operating	–15.2 to 3048 m (–50 to 10,000 ft)
Storage	–15.2 to 10,668 m (–50 to 35,000 ft)
Airborne contaminant level	G2 or lower as defined by ISA-S71.04-1985

Appendix

Macrovision Product Notice

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